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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,907	04/25/2007	Toru Nishimura	0425-1253PUS1	7128
2292 7590 06/01/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER QIAN, YUN	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 06/01/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,907	<b>Applicant(s)</b> NISHIMURA ET AL.	
	<b>Examiner</b> YUN QIAN	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Status of Claims***

Claims 1-10 and 12-16 remain for examination. Claims 1, 4-5 and 8-10 have been amended.

Claims 12-16 are newly added claims. Claim 11 is previously canceled.

### ***Previous Grounds of Rejection***

In light of the amendment, the rejection under 35 U.S.C 112(2) with respect to claims 1, 5, and 8-9 have been withdrawn.

In light of the amendment, the rejection under 35 U.S.C.103 (a) as being unpatentable over Yokota et al. (US 4,625,063) in view of Mizumoto et al (US 4,631,263) with respect to claims 1-5 and 8-10 the rejection have been withdrawn.

In light of the amendment, the rejection under 35 U.S.C.103 (a) as being unpatentable over Yokota et al. (US 4,625,063) in view of Mizumoto et al (US 4,631,263) further in view of Nishino et. al. (JP 55-149355) with respect to claims 6-7 have been withdrawn.

### ***New Grounds of Rejection***

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 and 8-9 are rejected under 35 U.S.C.103 (a) as being unpatentable over Mizumoto et al (US 4,631,263).

Regarding claim 1, Mizumoto et al teaches a water-repellent catalyst and a method of making by impregnating a solution of catalytically active noble metal with a polytetrafluoroethylene carrier. The resulting catalyst can be cut into sheets (10 cm wide, 210 cm long) (col. 6, lines 9-10).

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The thickness of catalytically active component taught by Mizumoto et al is from 50  $\mu\text{m}$  to 50  $\text{\AA}$  (col. 3, lines 35-39, and claim 3).

Although Mizumoto et al. does not specifically disclose the pore volume ( $\text{mL/m}^2$ ) of the catalyst, he teaches the porous carrier (polytetrafluoroethylene) having a mean pore size of 0.1 to 10  $\mu\text{m}$  and a porosity of 50 to 95% (claim 1).

Since the catalytically active component is coated on the outer surface of the support material, it would be obviousness that the particle sizes of the powdery catalysts (containing 50% wt of active metal oxide on the synthetic zeolite) is bigger than the pore volume of the supported carrier.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the film-type catalyst taught by Mizumoto et al. in the process of Yokota, motivated by the fact that Mizumoto et al. discloses that such film-type catalysts provide improved gas ( $\text{H}_2$ ) permeability and thus lead to better catalytic efficiencies (abstract, and col. 5, lines 15-16).

Regarding claims 2-3 as discussed above, the film-type catalyst taught by Mizumoto et al. comprises copper, and have a thickness of 50  $\mu\text{m}$  to 50  $\text{\AA}$ . It is fixed on the surface of a substrate(claim 3)..

Regarding claims 4 and 8, since the film-type catalyst taught by Mizumoto et al. has a thickness from 50  $\mu\text{m}$  to 50  $\text{\AA}$ , it is considered a metal film is coated on the surface of another metal film (substrate).

Regarding claim 5, the ratio of the active metal to the total weight of carrier (synthetic resin, polytetrafluoroethylene) taught by Mizumoto is 0.1 to 10%wt (claim 1). Such ratio is considered to be a result effective variable because, it is

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well understood that the catalytic efficiencies is based on the surface area of the active metal, metal particle sizes and surface area of the support material. So the skilled artisan would have determined the optimal amount of catalyst loading onto to the carrier, based on the above considerations though routine experimentation in the art. Particular in view of the fact that:

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding claims 6, Mizumoto et al discloses the carrier for the film-type catalyst comprising polytetrafluoroethylene (thermosetting polymer) (col. 3, lines 5-19).

Regarding claim 9, the support members taught by Mizumoto et al. are metallic nets, such as a fine-wire net, a lattice form plate. It encompasses the instant claims (FIG. 5, col. 3, lines 52 to col.5, lines 25).

Claim 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizumoto et al. as discussed above, in further view of Nishino et. al. (JP 55-149355).

Regarding claim 7, although Mizumoto et al. does not specially teach including a phenol resin as per applicant claim 7, Nishino et al teaches a process

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of making a phenol resin supported oxidation catalyst. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute polytetrafluoroethylene of Mizumoto with phenol resin of Nishino. As both materials are equivalent used as catalyst support material, having good refractoriness, pertains excellent strength against compression force, it would have a reasonable expectation of success. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 10 and 12-16 are rejected under 35 U.S.C.103 (a) as being unpatentable over Yokota et al. (US 4,625,063) in view of Mizumoto et al (US 4,631,263).

Regarding claims 10, Yokota et al. teaches a process of production a tertiary amine from an alcohol or an aldehyde and a primary or second amine, catalyzed by a powdery catalyst (the molar ratio of Cu: Ni: Ru=4:1:0.01) (Abstract, [0069] and claim 1).

However, Yokota et al. fails to teach further converting the powdery catalyst to a film-type catalyst as per applicant claim 1. Mizumoto et al teaches a method of making water-repellent catalyst by impregnating a solution of catalytically active noble metal with a polytetrafluoroethylene carrier. The resulting catalyst can be cut into sheets (10 cm wide, 210 cm long) (col. 6, lines 9-10).

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The thickness of catalytically active component taught by Mizumoto et al is from 50  $\mu\text{m}$  to 50  $\text{\AA}$  (col. 3, lines 35-39, and claim 3).

Although Mizumoto et al. does not specifically disclose the pore volume ( $\text{mL/m}^2$ ) of the catalyst, he teaches the porous carrier (polytetrafluoroethylene) having a mean pore size of 0.1 to 10  $\mu\text{m}$  and a porosity of 50 to 95% (claim 1).

Since the catalytically active component is coated on the outer surface of the support material, it would be obviousness that the particle sizes of the powdery catalysts (containing 50% wt of active metal oxide on the synthetic zeolite) is bigger than the pore volume of the supported carrier.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the film-type catalyst taught by Mizumoto et al. in the process of Yokota, motivated by the fact that Mizumoto et al. discloses that such film-type catalysts provide improved gas ( $\text{H}_2$ ) permeability and thus lead to better catalytic efficiencies (abstract, and col. 5, lines 15-16).

Regarding claims 12-13 as discussed above, the film-type catalyst taught by Mizumoto et al. comprises copper, and have a thickness of 50  $\mu\text{m}$  to 50  $\text{\AA}$ . It is fixed on the surface of a substrate (claim 3).

Regarding claims 14-15, since the film-type catalyst taught by Mizumoto et al. has a thickness from 50  $\mu\text{m}$  to 50  $\text{\AA}$ , it is considered a metal film is coated on the surface of another metal film (substrate).

Regarding claim 16, the support members taught by Mizumoto et al. are metallic nets, such as a fine-wire net, a lattice form plate. It encompasses the instant claims (FIG. 5, col. 3, lines 52 to col.5, lines 25).



***Response to Arguments***

***With regards to the previous Grounds of Rejection***

Applicant's arguments filed 2/13/2009, with respect to claims 1-10, have been considered but are moot in view of the new grounds of rejection. Nonetheless, the examiner would like to take this opportunity to address some of the Applicant's arguments.

Regarding claim Claims 1-5 and 8-10 are rejected under 35 U.S.C.103 (a) as being unpatentable over Yokota et al. (US 4,625,063) in view of Mizumoto et al (US 4,631,263), applicants argue that the substrate/carrier of Mizumoto et al. is porous, which is different from instant claimed as the catalyst layer is porous.

Applicants' arguments are not found persuasive because the powder catalyst taught by Yokota et al. is a 50%: 50% mixture of metal oxides and synthetic zeolite, which is the exactly same as present application used. In addition, the supporting materials (polytetrafluoroethylene) disclosed by Mizumoto et al. are porous, with a pore size of 0.1 to 10  $\mu\text{m}$  and a porosity of 50 to 95%.

Moreover, Mizumoto et al teaches a method of preparing a film-type catalyst, i.e. 10 cm wide X 210 cm long sheets, and the catalytically active noble metal has a thickness from 50  $\mu\text{m}$  to 50 Å (col.6, lines 9-10, claims 1 and 3).

Therefore, the catalysts prepared according to the combined references are expected to be film-type porous catalysts as per applicant claims 1 and 10,

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motivated by the fact that achieving a better catalytic efficiencies (abstract, and col. 5, lines 15-16).

Regarding the structure differences between the prior art of records and the present application, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

As the combined references teach every aspect of the present invention applications. Therefore, the rejection with respect to claim Claims 1-5 and 8-10 stands.

Regarding Claims 6-7 as rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota and Mizumoto, and further in view of Nishino et. al. (JP 55-149355), applicants argue Nishino et al does not teach a film catalyst.

As set forth in this office action, the references as combined above teach a film-type catalyst.

However, note that while Yokota and Mizumoto do not disclose all the features of the present claimed invention, Nishino et al is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely using phenol resin and in combination with the primary reference, discloses the presently claimed invention.

One cannot show nonobviousness by attacking references individually where the rejections are based on combination of references.

### Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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